

What is claimed:

- 1           1.       A hydrokinetic torque converter, comprising:
  - 2           a housing rotatable about a predetermined axis;
  - 3           a pump rotatable by said housing about said axis;
  - 4           a turbine rotatable in said housing about said axis by and relative to said pump;
  - 5           means for rotating said housing;
  - 6           an output element rotatable about said axis and arranged to receive torque from
  - 7   said turbine;
  - 8           a fluid-operated bypass clutch disposed in said housing and arranged to
  - 9   transmit variable torque between said housing and arranged to transmit variable torque
  - 10   between said housing and said output element, said clutch including a driving
  - 11   component rotatable with said housing and a driven component rotatable with said
  - 12   output element and movable axially of said housing into and from frictional engagement
  - 13   - with and without slip - with said driving component;
  - 14           means for moving said driven component, including first and second
  - 15   plenum chambers containing bodies of hydraulic fluid at variable pressure with the
  - 16   provision for fluid flow between said chambers through said clutch;
  - 17           means for regulating the fluid flow between said chambers in dependency

18 upon the magnitude of torque being transmitted by the clutch; and  
19 wherein said clutch further comprises at least one friction lining borne by  
20 one of said components and frictionally engaging the other of said components and  
21 frictionally engaging the other of said components in the engaged condition of said  
22 clutch, said components and said friction linings having friction surfaces each of which  
23 engages another of said surfaces at least in the engaged condition of said clutch, said  
24 regulating means having recesses extending at least substantially radially of said axis  
25 and provided in at least one of said surfaces to establish at least a portion of said fluid  
26 flow in the engaged condition of said clutch.

1 2. The torque converter of claim 1, wherein said recesses are provided in  
2 surface of at least one of said components.

1 3. The torque converter of claim 1, wherein said recesses are embossed into  
2 said at least one surface.

1 4. The torque converter of claim 1, wherein said recesses are defined by  
2 displaced material of that one of said components and said at least one friction lining  
3 which is provided with said at least one surface.

1 5. The torque converter of claim 1, wherein said at least one friction lining  
2 is a washer having a predetermined width as measured radially of said axis, at least  
3 some of said recesses being provided in the surface of at least one of said components,

4 being overlapped by said at least one friction lining, and having a length exceeding said  
5 predetermined width.

1 6. The torque converter of claim 1, wherein said at least one surface is  
2 provided with an annular array of between about 10 and 400 recesses.

1 7. The torque converter of claim 6, wherein said array includes between  
2 about 100 and 300 recesses.

1 8. The torque converter of claim 1, wherein at least some of said recesses  
2 are elongated and have lengths of between 10 and 50 mm.

1 9. The torque converter of claim 8, wherein said lengths are between about  
2 10 and 30 mm.

1 10. The torque converter of claim 1, wherein at least some of said recesses  
2 have depths less than about 0.3 mm.

1 11. The torque converter of claim 10, wherein said depths are below 0.15  
2 mm.

1 12. The torque converter of claim 1, wherein at least some of said recesses  
2 have widths of between about 0.2 and 20 mm.

1 13. The torque converter of claim 12, wherein said widths are between about  
2 0.5 and 1 mm.

1           14.       The torque converter of claim 1, wherein the ratio of the area taken up  
2   by said recesses to the area of the non-recessed portion of said at least one surface is  
3   between about 2:1 and 1:200.

1           15.       The torque converter of claim 14, wherein said ratio is between about  
2   1:1 and 1:10.

1           16.       The torque converter of claim 1, wherein said at least one surface has  
2   edges bounding said recesses, at least some of said edges being at least substantially  
3   rounded.